Approved For Release 2004/11/30 : CIA-RDP78B04770A000500010081-8

packing list

20 JAN 67

FROM: QUEBEC TO: ALFA

STAT FOR: [redacted] VIA: MIL/AIR

SHIPMENT NBR. Q-67-XD-21

* * * * * *

1 EACH OUTLET FOR 3 PHASE POWER
FOR BRIEFING PRINT ENLARGER

* * * * * *

PLEASE SIGN AND RETURN ONE (1) COPY.

RECEIVED [signature] 1-23-67

DATE 1-23-67

Approved For Release 2004/11/30 : CIA-RDP78B04770A000500010081-8

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AO 768-B REV. 11 63

INSTALLATION ENGINEERING DATA
for
Briefing Print Enlarger (BPE)
No. 1-023-E-001

## 1. General

This instrument is designed for the rapid convenient exposure of large photographic prints at a wide range of magnification from selected sections of high quality aerial photographic negatives in roll form. Pertinent data for the selection and preparation of the work-space for the Enlarger are provided.

## 2. Environment

2.1 The BPE must operate in a photographic darkroom with safelights suitable for the print stock being exposed. All lights in the enlarger are enclosed, shielded, or provided with intensity controls to avoid unwanted exposure of the print stock.

2.2 The workroom should be clean and maintained within the temperature and humidity range required for dry handling of photographic print stock. It is highly desirable, though not mandatory, that the enlarger not be installed in a "wet" darkroom to avoid the associated high humidity, chemical fumes and dust, etc. which may corrode precision mechanical parts of the instrument.

## 3. Space Requirements

3.1 The floor space requirements are shown in sheet 4. The outline demensions of the Main Assembly and the location of the operator access area is shown in that drawing.

3.2 The operator normally has no need to move into the area labeled "Service Access". It is recommended that the electric power outlet, the connection for the outdoor exhaust, and the Easel Exhauster be located in this area.

3.3 Storage for the interchangeable optical systems is provided in two modified four-drawer "legal" size file cabinets. These cabinets should be adjacent to the operator access area, preferably that portion along the right side of the Enlarger as one looks from the negative gate toward the Easel.

## 4. Equipment Portability

4.1 Main Assembly - By removal of the Easel (weight about 100 lbs.) and of the Lamp Control box the width of the Main Assembly is reduced to 35 inches, permitting it to be moved through a 36-inch door, provided perpendicular access is possible. A castered jack is provided on each of the four legs of the Lower Frame to assist in moving this 1500-pound assembly.

4.2 The Exhauster Assembly dimensions are shown on sheet 5. This assembly weighs about 350 pounds and rests on two 4x4 wood rails. A skid truck is recommended for moving the unit.

4.3 Lens Storage Cabinets - are standard 4-drawer "legal" size file cabinets. Furniture moving equipment as normally used for such file cabinets is suggested.

## 5. Electrical Service

5.1 The standard electrical service for the BPE is

| | | |
|---|---|---|
| (a) | Voltage | 208/120 volts ± 10% |
| (b) | Current | 20 amps/phase |
| (c) | Frequency | 60 Hz |
| (d) | Nr. of phases | 3 Ph |
| (e) | Nr. of wires | 4 |
| (f) | Power required | 4500 watts |
| (g) | Power factor | 0.8 minimum, lagging |

APPLICATION | NEXT ASSY | USED ON | NEXT ASSY | FINAL ASSY | QUANTITY REQD

UNLESS OTHERWISE SPECIFIED: DIM ARE IN | DECIMAL TOL ± | FRACTIONAL TOL ± | ANGULAR TOL ± | SURF ROUGHNESS | EDGES | 1 S DE COR RAD I

MATERIAL | FINISH | DEVIATIONS FROM INT NDED SHAPE (FLATNESS, ROUNDNESS, SQUARENESS ETC.) MUST BE WITHIN STATED DIMENSIONAL OLERANCES

DIM. APPLY AFTER FINISH WHERE TOTAL TOL IS .001 IN OR LESS AND ON ALL THREADS N ALL OTHER PLACES D MENSIONS APPLY BEFORE F NISH.

DR | CHK | DFTG | ENGR

NAME

SCALE OF O IG DWG: T

ORIG CHG NO. | REL DATE 11-18-66

DWG SIZE: B

CODE | NO. 1-023-B-513 | SHEET 1 OF 7

INSTALLATION ENGINEERING DATA
B P E (NO. 1-023-E-001)

1-023-B-513

| NO. | SYM | DESCRIPTION | DATE | APPROVAL |
|---|---|---|---|---|

REVISIONS

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5.2 **Service Outlet** - The contractor will supply a special receptable and box for installation by the customer. It is recommended that the receptacle be mounted as a permanent wall outlet in a location within the "Service Access" area illustrated on sheet 4. Recommended mounting height and service connections are shown on sheet 7. A rubber covered 5-conductor cord (15 ft. long) from the Enlarger Main Assembly plugs into this outlet.

5.3 Alternate electrical service - The BPE can be built to operate with 220 volts, 3 phase, 3 wire input or with 220 volts, 1 phase, 3 wire input, providing one of these arrangements is requested with the order or that necessary equipment changes are made. Outlet receptacle connections for these alternate service arrangements are described in notes on sheet 7.

6. Easel Exhauster

This unit is a turbine blower driven by a 3 hp induction motor. It provides about 0.5 psig vacuum at the Easel face and provides cooling exhaust for the Lamphouse.

6.1 The motor-blower assembly is mounted in a noise suppressing enclosure whose outline dimensions are shown in sheet 5. It is recommended that this assembly be installed in the room with the Main Assembly to avoid disturbing the building air circulation system. The air delivery from the Exhauster is about 600 cfm maximum. This assembly should also be located in the "Service Access" area relative to the Main Assembly as shown on sheet 4. A 7-inch I.D. flexible tube ten feet long is supplied to make the air connection between the Main Assembly and the Exhauster.

6.2 The Exhauster may sit on the floor or, if floor space is limited, it may be mounted overhead. For overhead mounting, a shelf or bracket arrangement to support the two 4"x4" rails under the Exhauster should be provided. If overhead mounting is desired the customer should make this installation. The intake port of the Exhauster should be located to permit a direct run for the air tube from the Main Assembly. The exhaust ports of the Exhauster should be at least six inches from any wall.

6.3 The electrical power for the Exhauster is provided through a cord which plugs into a receptacle on the Main Assembly. A safety cutoff switch is provided in a junction box on the Exhauster. Normal control of the motor is provided by the Main Switch on the front control panel of the Enlarger Main Assembly.

6.4 The major heat output of the BPE system is carried in the Exhauster output air, and is estimated to be 1.5 to 2.0 kilowatts. (5000 to 7000 BTU/Hr.)

7. Immersion Fluid Vapor Exhaust

The immersion fluid vapor is removed from the negative gate area by a blower mounted on the Enlarger Main Assembly. The output from this blower should be exhausted outdoors.

7.1 A length of 4-inch I.D. flexible tube 25 feet long is supplied to connect the vapor exhaust blower to the customer's outdoor exhaust system.

7.2 The outdoor exhaust system, to be supplied by the customer, should have an input nipple 4-inch O.D. by about 1.5 inches long to receive the end of the flexible tube supplied with the Enlarger. The input point should be in the "Service Access" area indicated on sheet 4.

APPLICATION | NEXT ASSY | USED ON | NEXT ASSY | FINAL ASSY | QUANTITY REQD

UNLESS OTHERWISE SPECIFIED: DIM ARE IN | DECIMAL TOL ± | FRACTIONAL TOL ± | ANGULAR TOL ± | SURF ROUGHNESS | EDGES 1 S DE COR RAD 1

MATERIAL | FINISH

DEVIATIONS FROM INTENDED SHAPE (FLATNESS, ROUNDNESS, SQUARENESS, ETC.) MUST BE WITHIN STATED DIMENSIONAL TOLERANCES

DIM. APPLY AFTER FINISH WHERE TOTAL TOL IS .001 IN. OR LESS AND ON ALL THREADS. IN ALL OTHER PLACES DIMENSIONS APPLY BEFORE FINISH.

DR MS | CHK | DFTG | ENGR | ENGR

NAME

INSTALLATION ENGINEERING DATA BPE (NO. 1-023-E-001)

SCALE OF ORIG DWG | WT

ORIG CHG NO | REL DATE 11-8-63

DWG SIZE B

CODE | NO. 1-023-B-513

SHEET 2 OF 7

STA

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1-023-B-513 ON

| SYM | DESCRIPTION | DATE | APPROVAL |
|---|---|---|---|

REVISIONS

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7.3 The outdoor exhaust system should provide an additional blower, or make other provisions, to prevent stoppage or reversal of the air flow by back pressure from the outside vent. In many buildings, the air conditioning system operates at a slight positive pressure relative to the outdoors which may serve this requirement. The exhaust system should provide for air flow of 200 to 300 cfm.

8. Summary of Action Items for Installation

8.1 Customer Action

8.1.1 Site Preparation
- 8.1.1.1 Specify locations for equipment items.
- 8.1.1.2 Install special electrical outlet.
- 8.1.1.3 Mount Exhauster if elevated location is required.
- 8.1.1.4 Provide outdoor exhaust system for immersion fluid vapor.

8.1.2 Installation Assistance
- 8.1.2.1 Provide manpower and equipment to assist in moving the Enlarger subassemblies into installation area.
- 8.1.2.2 Provide facilities for processing photographic test prints--10"x12" sheets (maximum) of Eastman Fine Grain Positive Film.

8.2 Contractor Action

8.2.1 Before Enlarger Delivery
- 8.2.1.1 Provide additional engineering data and consultation as required for site preparation.
- 8.2.1.2 Deliver special electrical receptable and its box.
- 8.2.1.3 Make early delivery of Exhauster if customer is to provide an elevated installation of it.

8.2.2 At Installation Time
- 8.2.2.1 Provide two-man specialist crew for Enlarger installation.
- 8.2.2.2 Reassemble the instrument
- 8.2.2.3 Realign as required.
- 8.2.2.4 Make operation and photographic tests of Enlarger performance. Readjust and repair as required.

APPLICATION | NEXT ASSY | USED ON | NEXT ASSY | FINAL ASSY | QUANTITY REQD

UNLESS OTHERWISE SPECIFIED: DIM ARE IN | DECIMAL TOL | FRACTIONAL TOL | ANGULAR TOL | SURF ROUGHNESS | EDGES | I S DE COR RAD I

MATERIAL | FINISH | DEVIATIONS FROM INDICATED SHAPE (FLATNESS, ROUNDNESS, SQUARENESS ETC.) MUST BE WITHIN STATED DIMENSIONAL TOLERANCES

DIM. APPLY AFTER FINISH WHERE TOTAL TOL IS .001 IN. OR LESS AND ON ALL THREADS. IN ALL OTHER PLACES DIMENSIONS APPLY BEFORE FINISH.

DR | CHK | DFTG | ENGR

NAME

INSTALLATION ENGINEERING DATA BPE (NO. I-023-E-001)

SCALE OF DWG | ORIG CHG NO. | REL DATE 11-13-60 | DWG SIZE B | CODE | NO. I-023-B-513 | SHEET 3 OF 7

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ON 023-B-513

SYM | DESCRIPTION | DATE | APPROVAL

VISIONS

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| SYM | DESCRIPTION | DATE | APPROVAL |
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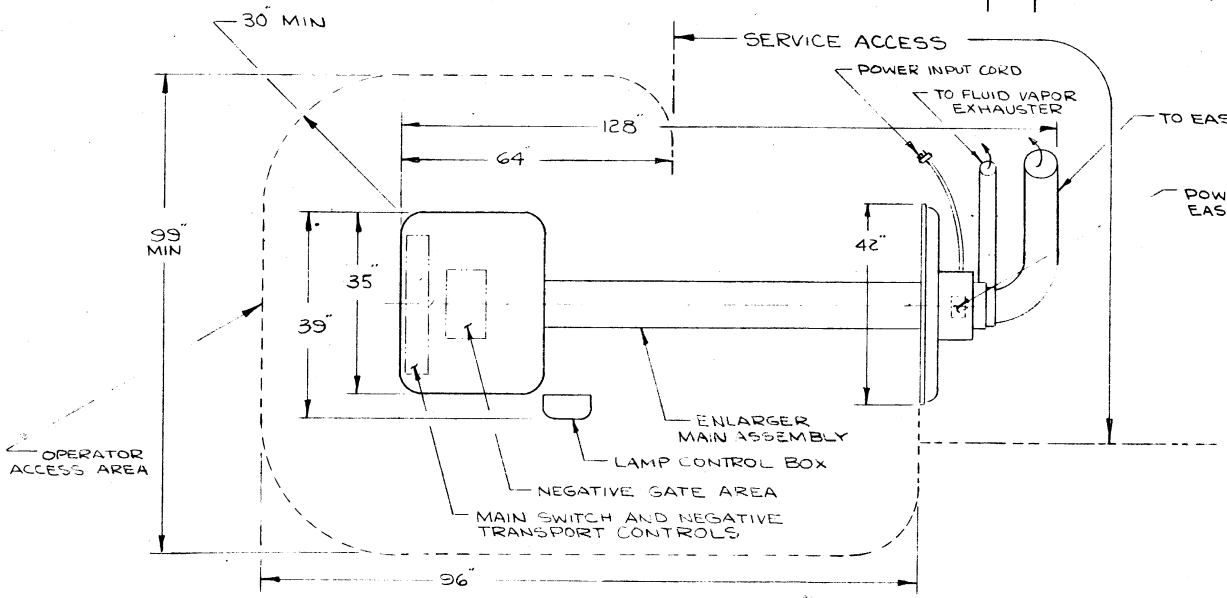


OVERALL HEIGHT = 78" MAX

ENLARGER MAIN ASSEMBLY

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | UNLESS OTHERWISE SPECIFIED | MATERIAL | DIM. APPLY AFTER FINISH WHERE TOTAL TOL IS .001 IN. OR LESS AND ON ALL THREADS. N ALL OTHER PLACES DIMENSIONS APPLY BEFORE FINISH. |
| | | | | DIM. ARE IN | | |
| | | | | DECIMAL TOL ± | | |
| | | | | FRACTIONAL TOL ± | FINISH | |
| | | | | ANGULAR TOL ± | | |
| | | | | SURF ROUGHNESS | ✓ | |
| NEXT ASSY | USED ON | NEXT ASSY | FINAL ASSY | EDGES | DEVIATIONS FROM INTENDED SHAPE (FLATNESS, ROUNDNESS, SQUARENESS ETC.) MUST BE WITHIN STATED DIMENSIONAL TOLERANCES. | |
| APPLICATION | | QUANTITY REQD | | INSIDE COR RADII | | |

DRN R.
CHK
DFTG
ENGR

NAME
INSTALLATION ENGINEERING DATA BPE (NO. 1-023-E-001)

SCALE OF ORIG DWG
ORIG CHG NO.
REL DATE 11-18-66

DWG SIZE B

NO. 1-023-B-513

CODE

SHEET 4 OF 7

AO 788-B REV 11-63

25X1

25X1

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| SYM | DESCRIPTION | DATE | APPROVAL |
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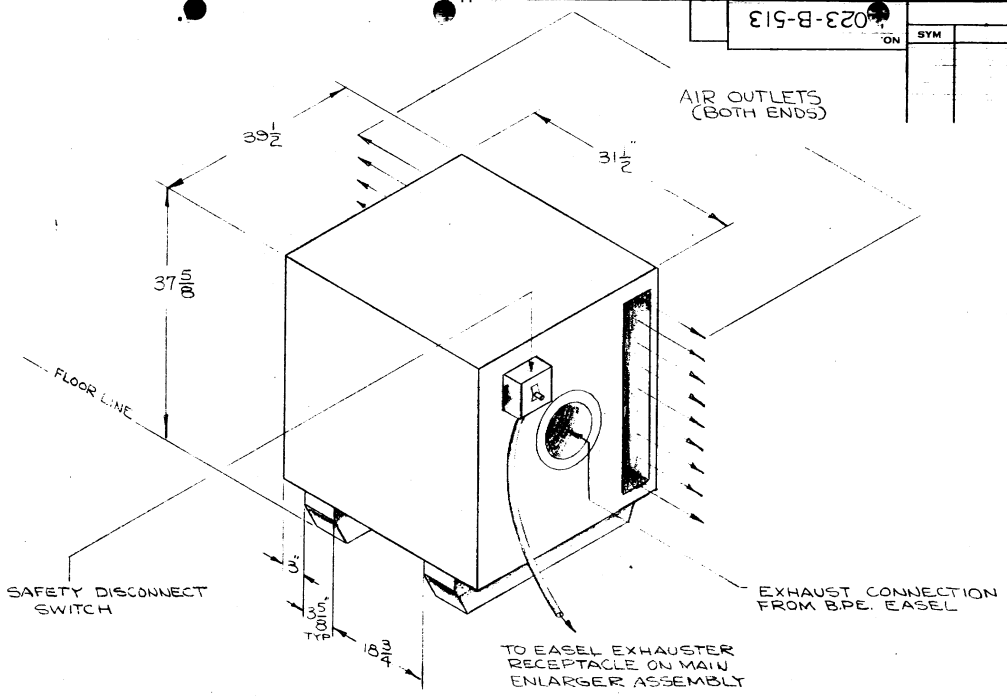


EASEL EXHAUSTER

| | | | |
|---|---|---|---|
| NEXT ASSY | USED ON | NEXT ASSY | FINAL ASSY |
| APPLICATION | | QUANTITY REQD | |

| | |
|---|---|
| UNLESS OTHERWISE SPECIFIED | |
| DIM. ARE IN | |
| DECIMAL TOL ± | |
| FRACTIONAL TOL ± | |
| ANGULAR TOL ± | |
| SURF. ROUGHNESS | ✓ |
| EDGES | |
| INSIDE COR RADII | |

MATERIAL

FINISH

DEVIATIONS FROM INTENDED SHAPE (FLATNESS, ROUNDNESS, SQUARENESS ETC) MUST BE WITHIN STATED DIMENSIONAL TOLERANCES.

DIM. APPLY AFTER FINISH WHERE TOTAL TOL IS .001 IN. OR LESS AND ON ALL THREADS. IN ALL OTHER PLACES DIMENSIONS APPLY BEFORE FINISH.

| | |
|---|---|
| DR | N.R. |
| CHK | |
| DFTG | |
| ENGR | |

NAME

INSTALLATION ENGINEERING DATA B.P.E. (NO. 1-023-E-001)

| | | | |
|---|---|---|---|
| SCALE OF ORIG DWG | | ORIG CHG NO. | |
| WT | | REL DATE 11-18-66 | |

DWG SIZE B

NO. 1-023-B-513

CODE SHEET 5 OF 7

25X1

25X1

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1-023-B-513

| REVISIONS | | | |
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| SYM | DESCRIPTION | DATE | APPROVAL |
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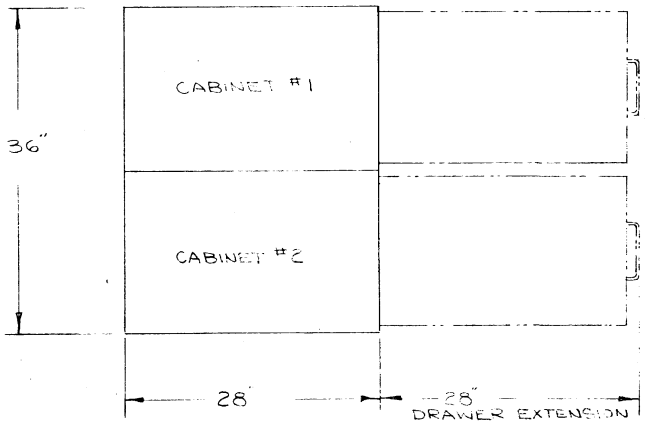
LENS STORAGE CABINETS




OVERALL HEIGHT 52"

LENS STORAGE

| | | | |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| NEXT ASSY | USED ON | NEXT ASSY | FINAL ASSY |
| APPLICATION | | QUANTITY REQD | |

| | |
|---|---|
| UNLESS OTHERWISE SPECIFIED | |
| DIM. ARE IN | |
| DECIMAL TOL ± | |
| FRACTIONAL TOL ± | |
| ANGULAR TOL ± | |
| SURF. ROUGHNESS | ✓ |
| EDGES | |
| INSIDE COR RADII | |

MATERIAL

FINISH

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| | |
|---|---|
| DR N.R. | |
| CHK | |
| DFTG | |
| ENGR | |
| ENGR | |

NAME

INSTALLATION ENGINEERING DATA BPE (NO. 1-023-E-001)

| | | | |
|---|---|---|---|
| SCALE OF ORIG DWG | ORIG CHG NO. | DWG SIZE | NO. 1-023-B-513 |
| WT | REL DATE 11-18-66 | B | CODE SHEET 6 OF 7 |

25X1

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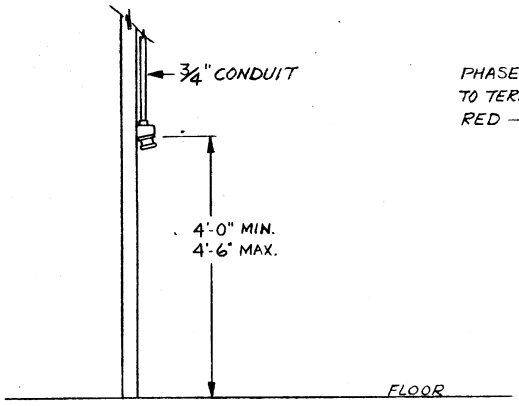
WIRING SHOWN IS FOR A 208/120 V., 3φ, 4 WIRE SYSTEM. USE 4 - #12 AWG WIRES

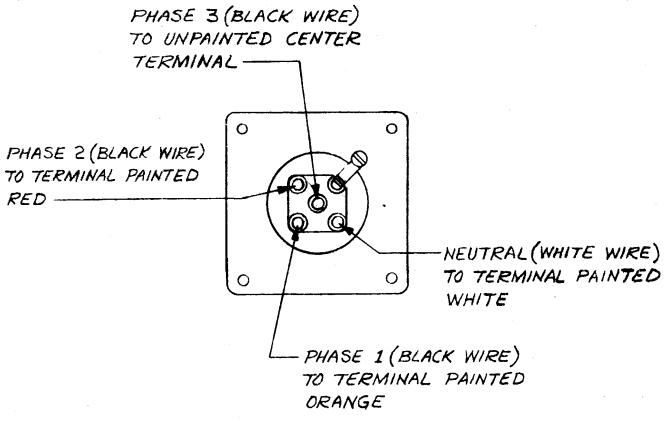
FOR A 220V, 3φ, 3 WIRE SYSTEM, ELIMINATE THE NEUTRAL (WHITE WIRE). USE 3 - #12 AWG WIRES.

FOR A 220 V., 1φ, 3 WIRE SYSTEM, ELIMINATE THE BLACK WIRE TO THE UNPAINTED CENTER TERMINAL. USE 3 - #10 AWG WIRES.

023-B-513

| REVISIONS | | | |
|---|---|---|---|
| SYM | DESCRIPTION | DATE | APPROVAL |
| | | | |





PHASE 3 (BLACK WIRE) TO UNPAINTED CENTER TERMINAL
PHASE 2 (BLACK WIRE) TO TERMINAL PAINTED RED
NEUTRAL (WHITE WIRE) TO TERMINAL PAINTED WHITE
PHASE 1 (BLACK WIRE) TO TERMINAL PAINTED ORANGE

RECEPTACLE - CROUSE-HINDS NO. ARE - 3583

| NEXT ASSY | USED ON | NEXT ASSY | FINAL ASSY |
|---|---|---|---|
| APPLICATION | | QUANTITY REQD | |

UNLESS OTHERWISE SPECIFIED
DIM. ARE IN
DECIMAL TOL ±
FRACTIONAL TOL ±
ANGULAR TOL ±
SURF ROUGHNESS
EDGES
INSIDE COR RADII

MATERIAL

FINISH

DEVIATIONS FROM INTENDED SHAPE (FLATNESS, ROUNDNESS, SQUARENESS ETC.) MUST BE WITHIN STATED DIMENSIONAL TOLERANCES

DIM. APPLY AFTER FINISH WHERE TOTAL TOL IS .001 IN. OR LESS AND ON ALL THREADS. IN ALL OTHER PLACES DIMENSIONS APPLY BEFORE FINISH.

NAME
INSTALLATION ENGINEERING DATA BPE (NO. I-023-E-001)

SCALE OF ORIG DWG. NONE
ORIG CHG NO.
WT
REL DATE 11-18-66

DWG SIZE B

NO. I-023-B-513
CODE
SHEET 7 OF 7

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25X1

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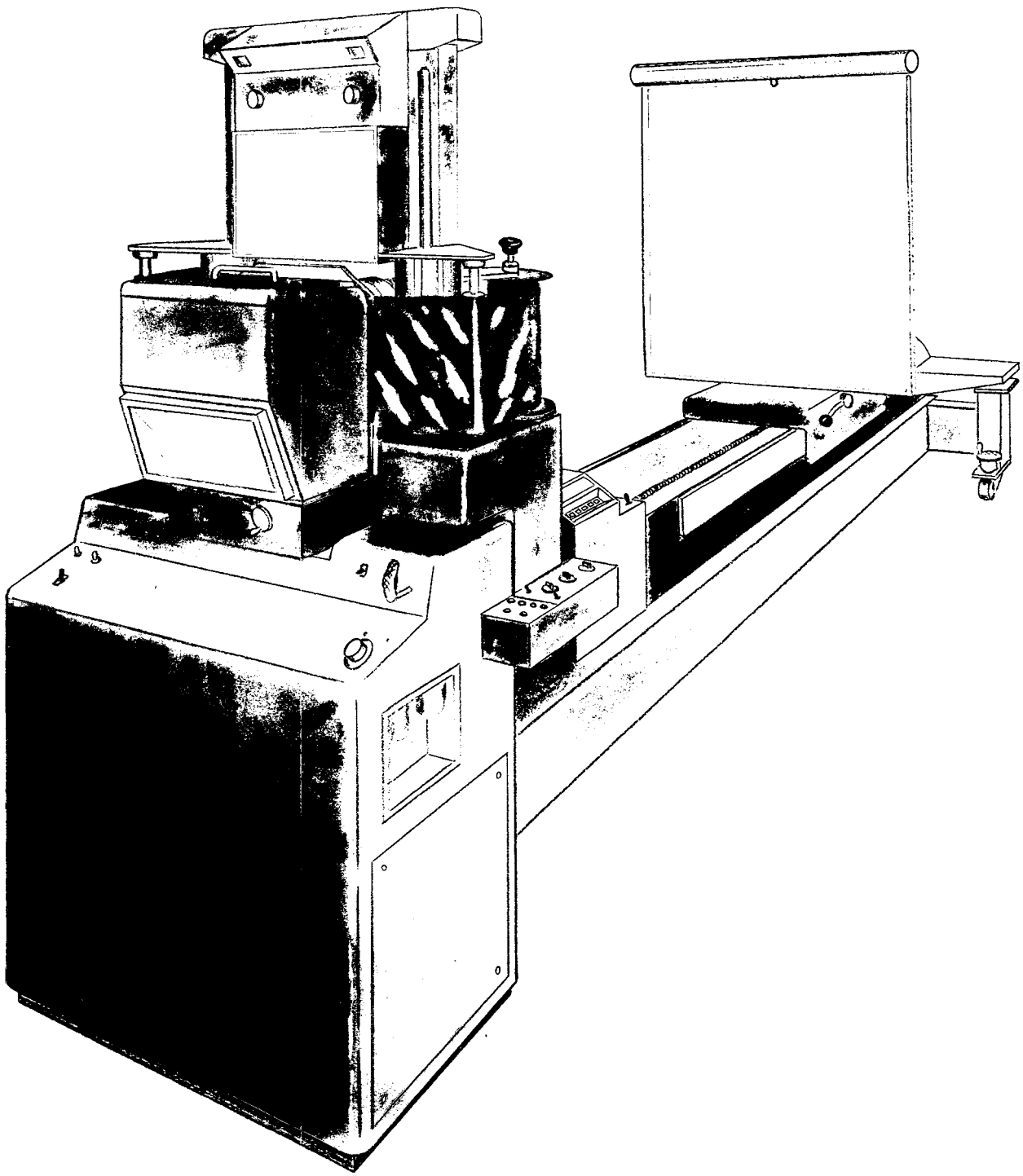

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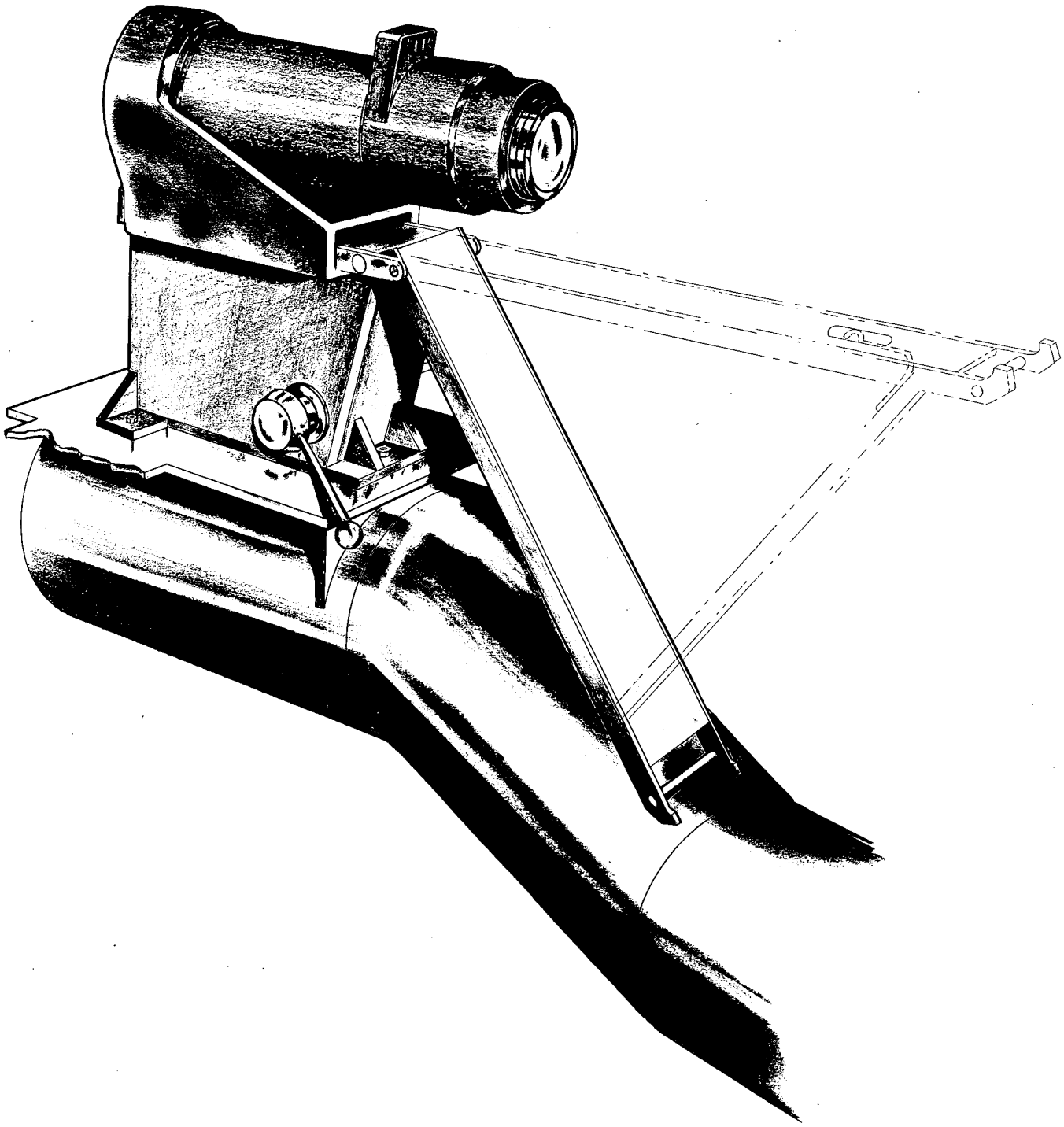

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# PFR-243

## Questions

1. What, if anything, can be done to fill the gaps in the mag.(x) range. There are no gaps

2. Can the mag.(x) be rounded off to even numbers without redesign of the equipment.

use first significant

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# how about a specification

1. Type — horizontal optical axis with movable easel.

1a. overall conjugate 50-80" OK

1b. magnification — ~~2.95~~ 3.0 to ~~61.48~~ 60.00 X

1c. Easel — brute force vacuum type power driven to accomodate up to 40x40" paper. field coverage chart OK

2. Lens — 6 each interchangable quick change clamp type.

2a. Focal length — 10.75", 7.17", 4.85"; 3.06," 1.93; 1.26"; ~~peaked for light at 4600 A~~ corrected for Red Green & blue

~~tolerance~~
10.6
7.17
4.8
3.06
1.90
1.94 except tolerance +-2.0%

2b. Field coverage

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9

| Negative | Print |
|---|---|
| 2.83" X 2.83" | 21.2" X 21.2" |
| +0 | +0 |
| 0.578" X 0.578" | 51.2 X 51.2" |

Similar to Page 18

2c. Resolution —
on axis 80 to 800 l/mm
Resolution loss at edge not more 20%?

2d. Focus — manual setting
to indexed numbers

3a. Exposure prediction —
spot probe easel
photometer min — max
density. (one probe)

will be rewritten

3b Exposure time for
neg density of 3.5 not to
exceed 15 sec. on
Kodabromide Paper.

3c - Lamp — 110 — 120 volt
bi-plane filament forced
cool of lamp, pilot and

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3

62" OAC

condensers. Illumination at
edge of field to be 70% of on axis
at 70% of the radius

3d The film gate temperature
with a 1.10 fogged density film in
place shall not exceed 120°F
after 15 sec. at 120 volts.
attaining stability

3e. Light filters — Red
blue, green and variable
for color
contrast equivalent to
paper grades 1, 2 and 3 also
heat filter as required to
meet above gate temperature.
requirements. [redacted] will [illegible] 25X

4. X & Y coordinates —
calibrated to represent
2mm on the negative, shall
at least count
be readily visible to the operator.
The y transport shall be
variable between .1 and 2
.5 inches per second.

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4. Films — Roll films
70 mm to 9.5" on MIL STD
spools, 500 ft. 5.5 mil base
1000 ft 2.5 mill

4a transport rate
nominal 350 ft per min.
Film to be completely dry when
tracking spool at top speed
(provision will be made that film is dry when arrives at spool)
5 Gate — Fluid type
4"x4" glass on objective
side to be in fixed position
Provision will be made for
Printing through film base

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FIELD COVERAGE (PREDICTED)
PAR 202 - BPE
PAR 224 - 3-15X

| | MAGNIFICATION | | FIELD COVERAGE NEGATIVE | | PLATEN | |
|---|---|---|---|---|---|---|
| | MIN. | MAX. | DIAM. | SQUARE | Min. MAG. | Max. MAG. |
| 1. | 2.5X | 5.3X | 4.0" | 2.83" | 10.0" | 21.2" |
| 2. | 4.75 | 9.0 | 4.0 | 2.83 | 19.0 | 36.0 |
| 3. | 8.55 | 15.0 | 3.8 | 2.68 | 32.5 | 57.0 |
| 4. | 14.5 | 24.7 | 2.18 | 1.53 | 31.6 | 53.8 |
| 5. | 24.2 | 40.2 | 1.29 | 0.905 | 31.2 | 51.8 |
| 6. | 38.0 | 62.5 | .82 | 0.578 | 31.2 | 51.2 |

DIAGONAL LENGTH FOR VARIOUS STANDARD SHEET SIZES

| SHEET | DIAG. | SHEET | DIAG. |
|---|---|---|---|
| 8" x 10" | 12.8" | 16" x 20" | 25.6" |
| 10" x 12" | 15.6" | 20" x 24" | 31.2" |
| 11" x 14" | 17.7" | 30" x 40" | 50.0" |
| 14" x 17" | 22.0" | 40" x 40" | 56.5" |

31 March 1965
RDP

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Briefing Print Enlarger

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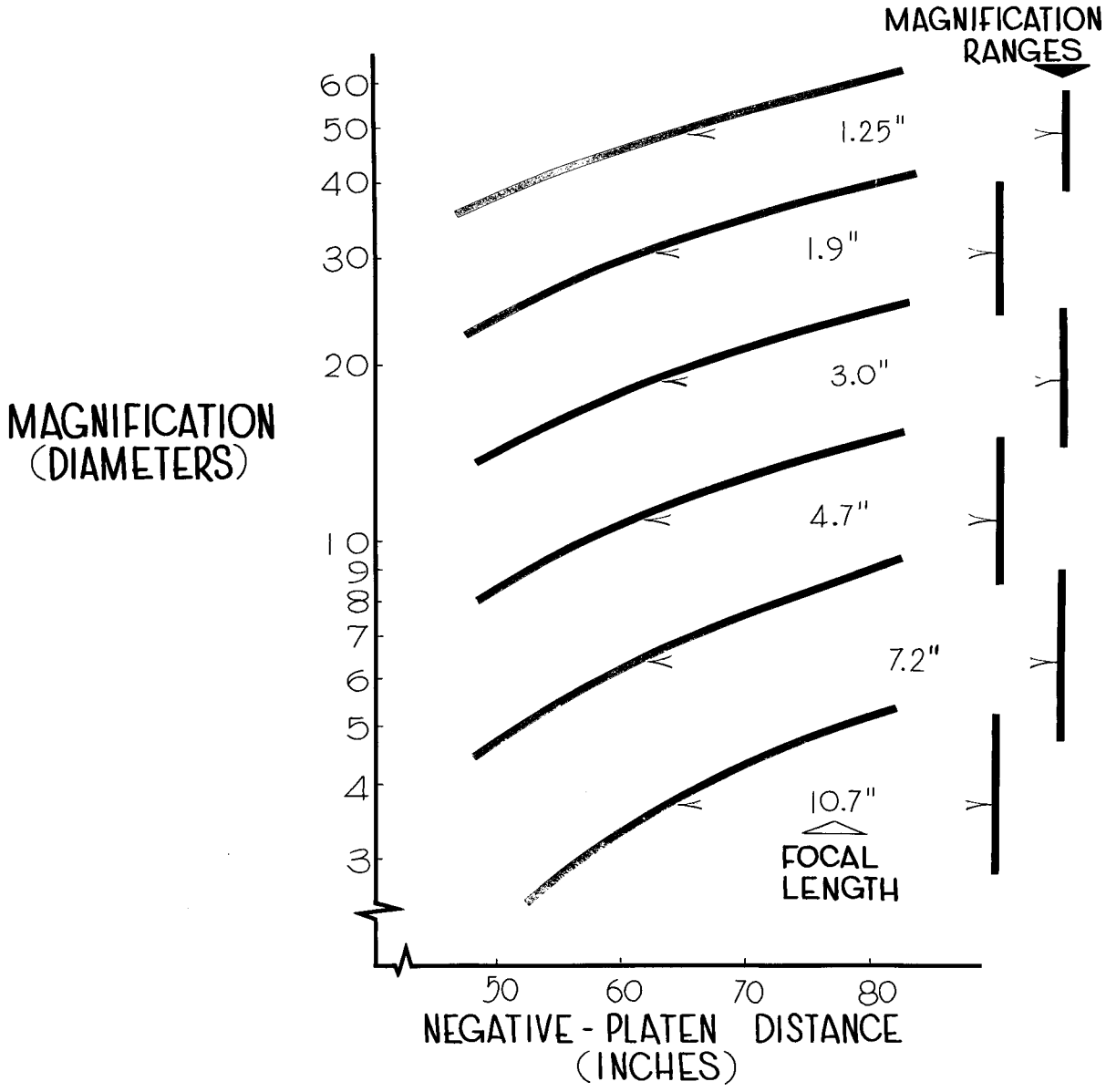
# RELATIONSHIP OF MAGNIFICATION, FOCAL LENGTH, *and* NEGATIVE TO PLATEN DISTANCE

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